

**33521, A NOVEL HUMAN GUANINE NUCLEOTIDE EXCHANGE
FAMILY MEMBER AND USES THEREOF**

Abstract

The invention provides isolated nucleic acids molecules, designated 33521 nucleic
5 acid molecules, which encode novel Rho GEF members. The invention also provides
antisense nucleic acid molecules, recombinant expression vectors containing 33521 nucleic
acid molecules, host cells into which the expression vectors have been introduced, and
nonhuman transgenic animals in which a 33521 gene has been introduced or disrupted. The
invention still further provides isolated 33521 proteins, fusion proteins, antigenic peptides
10 and anti-33521 antibodies. Diagnostic methods utilizing compositions of the invention are
also provided.

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